HUMANS ARE MORE IMPORTANT THAN HARDWARE

Human Performance Optimization (HPO) within DoD

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HPO Definition

"Human performance optimization is the process of applying knowledge, skills, and emerging technologies to improve and preserve the capabilities of DoD personnel to execute essential tasks."

per ASD(HA) HPO Working Group

Performance Issue – Sleep Deprivation

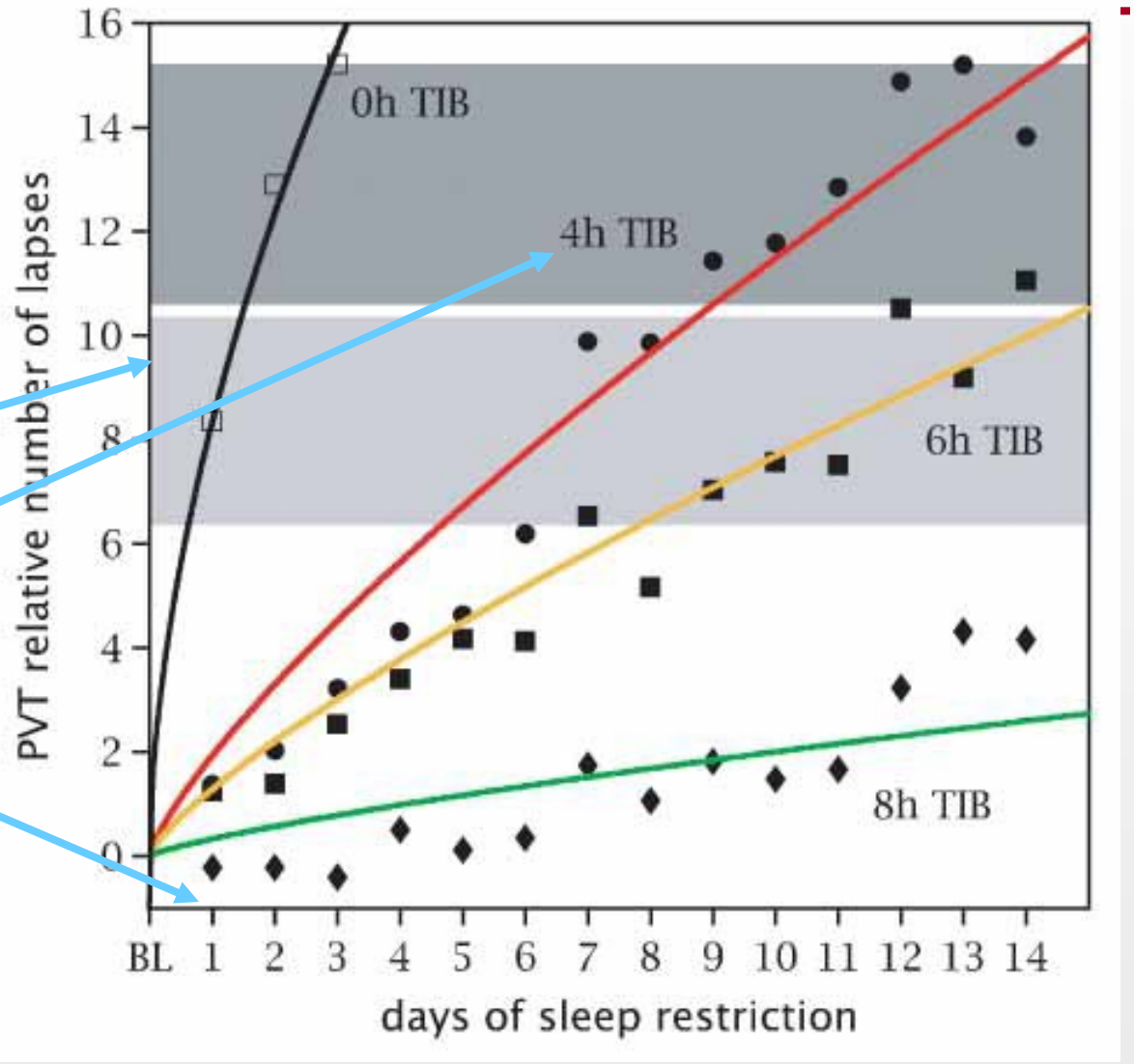
Important Example: How lack of sleep affects performance

Psychomotor Vigilance Test (PVT) mistakes

TIB = Time in Bed per Day (0-8 hours)

Test Day

Averages shown – there was considerable individual variation in performance



Dietary Supplements

- Unregulated
  - Some make exaggerated and unsubstantiated claims
  - Some service members self-medicate without objective info on efficacy, safety, and interactions
- May have harmful side effects
- May have a significant impact on ability to perform mission

Problem

- DoD needs to fully integrate their HPO program
  - A robust program will, even under the conditions of intense stress:
    - Enhance the mental and physical resilience of the war fighter
    - Reduce injury and illness
    - Improve the Human Weapons System's ability to accomplish the mission
- Potential threat to our security posed by other countries due to HPO edge over U.S. Forces

HPO Drivers for Change

- DEPSECDEF Memo to the JS, 20 Jan 2004: *"…the MHS must begin now to develop the next generation of…programs designed to optimize human performance and maximize fighting strength…"*
- USJFCOM's "Joint Force Health Implementation Plan," Oct 2004, directed Joint Force Health Protection Transformation
  - Required establishment of the JFCOM Human Performance Enhancement Integrated Product Team
  - Product: *Joint Human Performance Enhancement Joint Capabilities Document* (in draft)
    - Addresses standards, metrics, capabilities and gaps

HPO Drivers for Change

Quadrennial Defense Initiative 4

"…uniform minimum standards to measure the health, enhancement and protection status of deployed personnel do not exist."

"… the MHS will address this gap by developing joint, commonly applied minimum standards for all deployable personnel…"

Required Actions

- Identify enhancement standards based upon mission requirements
- Define joint capability requirements and standards for the protection of the joint force
- Focus research and development on providing new tools for sustaining and enhancing human performance

USUHS HPO Conference (Jan 2006)

- Directed by ASH(HA)
- Charged to develop recommendations to address concerns
- Attended by 87 individuals from 57 organizations
  - Identified HPO capabilities and gaps
  - Made broad recommendations to improve DoD HPO
  - Briefed results and recommendations to DASD (FHP&R)

USUHS HPO Conference Findings

- HPO does not have a standard DoD definition
- Metrics of human performance lack validation
- Commanders have inadequate HPO guidance
- Communication between operators and HPO researchers is absent or ineffective
- HPO is not integrated into a *joint* effort
- Requirements process does not adequately address HPO
- HPO research products are not effectively transitioned to the commanders/war fighters

HA (FHP&R and C&PP) IPT

- Chartered to address QDR requirements and USUHS sponsored HPO Conference issues
  - Co-Chairs: Col Johnson & Dr. Cirone (FHP&R), Ms. Pahland (C&PP)
  - Members: DDR&E, USUHS, SMEs from Services including co-chairs from JFCOM HPO IPT
  - Mission:
    - Define HPO
    - Identify solutions to USUHS HPO Conference issues
    - Develop approach to focus on HPO as a process and priority
    - Prepare recommendations for ASD(HA)

HA HPO IPT Actions

- Studied USUHS HPO Conference issues
- Developed definition of HPO
- Identified processes needed to facilitate HPO
- Identified organizational options to implement the needed processes and functions
- Identified educational/collaborative options to implement the needed processes and functions
- Developed recommendations for ASD(HA)

Processes and Products to Improve DoD HPO

1. Strong advocacy for HPO in DoD
2. Coordination of extramural and intramural DoD HPO research
   a. Align HPO research to DoD priorities
      Coordinate → De-conflict → Prioritize HPO research
   b. Facilitate interchange between researchers through researcher chat rooms, HPO library and conferences
      "Horizontal integration at the lower levels"
   c. Create standards for HPO research

Processes and Products to Improve DoD HPO

3. DoD clearinghouse for HPO information
   a. Identify current DoD HPO products, best practices and research
   b. Review current HPO research and produce usable products
   c. Create a Web site to disseminate HPO information to customers (commanders, Service members, medical personnel and researchers)
   d. Support line commanders with missions (field requirements)
   e. Support Service members with answers to questions
4. HPO policy/doctrine, to include joint requirements and joint capabilities documents

Clearinghouse Initiative

- Gather, organize, analyze, evaluate, summarize, & make available online usable HP information for:
  - Service members preparing for deployments
  - Line commanders, leaders, and planners
  - Medical professionals supporting DoD operations and personnel
  - HP researchers
  - Trainers, nutritionists and troop feeders
  - DoD planners and policy makers for force development and operational medicine
- $ 1.2 Million per year

HP Clearinghouse Functions

- Acquire HP information from all sources
- Categorize/sort into subject areas and potential relevance to various users
- Summarize complex information for various audiences (build products)
- Customize HPO products/solutions for mission specific needs
- Assess commercial HPO products for DoD use
- Establish an SME network for consultation and advice
- Facilitate information sharing/coordination within HP research community
- Establish two-way communication system between users and developers of medical HPO information

Some Focus Areas

- Extreme environments
  - Heat, cold
  - High altitudes
  - Aviation/space/diving
- Protection against brain injury
- Situational awareness
- Learning/communicating
- Decision making
- Nutrition
- Dietary supplements
- Performance enhancing drugs
- Strength training
- Endurance training
- Injury avoidance
- Psychological resilience
- Weight management
- Rest, sleep, alertness
- Lifestyle choices

Website Characteristics

- Hosted by USUHS
- All portions of Clearinghouse Web site would be available to all .mil users and selected non-DoD individuals (latter password protected)
- Searchable – organized by intended users & topic areas
- Will include online DoD queries & needs for routing to SMEs
- May eventually include bulletin board and chat room for professional information exchange
- Can send new-posting alerts to appropriate users
- Will include capability for users to provide input as to their HP knowledge requirements

HPO Governance

- The Assistant Secretary of Defense for Health Affairs and the Director, Defense Research and Engineering are standing up a DoD Human Performance Optimization Advisory Panel
  - Determine the full scope and functions of the clearinghouse
  - Define the roles of various DoD HPO organizations
  - Develop an HPO concept paper and a DoD HPO Instruction
- May result in a permanent action group which can advocate for HPO and recommend policies to DoD and the COCOMs

Human Performance Optimization

QUESTIONS OR COMMENTS?